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Report on the Capacity Development Workshop for Improving Agricultural Productivity, Water-use Efficiency and Rural Livelihoods

Summary

The Capacity Development Workshop for Improving Agricultural Productivity, Water-use Efficiency and Rural Livelihoods was held at the United Nations Conference Centre in Bangkok, from 28 to 30 January 2009.

The discussions, which brought together senior government policymakers, representatives of major groups, officials from the United Nations system, researchers, experts and other practitioners, focused on strengthening technical and institutional capacities of key Government institutions and policymakers in developing and implementing sustainable agricultural and rural development and irrigation management policies, with a specific focus on rural poverty reduction.

The outcome of the Workshop was the Summary of recommendations, which emphasized that improving agricultural productivity, promoting integrated management of land and water resources, providing access to social capital, securing access to tenure and adapting to climate change were prerequisites for sustainable agriculture and food security. The summary will be presented as a contribution to the seventeenth session of the Commission on Sustainable Development to be held from 4 to 15 May 2009 in New York.

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I. Overview

1. The Capacity Development Workshop on Improving Agricultural Productivity, Water-use Efficiency and Rural Livelihoods was held at the United Nations Conference Centre in Bangkok, from 28 to 30 January 2009. The Workshop brought together senior Government policymakers, representatives of major groups, officials from the United Nations system, researchers, experts and other practitioners, to share lessons learned and best practices in combating rural poverty. The Workshop began with an opening session, followed by sessions with thematic and country presentations, which were followed by round-table discussions.

2. The objective of the Workshop was to strengthen technical and institutional capacities of key Government institutions and policymakers in developing and implementing sustainable agricultural and rural development and irrigation management policies, with a specific focus on rural poverty reduction. Analysis and sharing of past experiences against the background of challenges facing agriculture, water and rural development allowed policymakers to have a better understanding of the policy interventions and actions needed to address the challenges of reducing rural poverty. In this regard, the Workshop targeted the following specific goals:

(a) To assess the effectiveness of existing national policies and strategies on rural development, irrigation management and agricultural development in reducing rural poverty, especially with a view to sharing experiences on good and bad practices;

(b) To identify a range of interventions and adjustments needed in the existing policies and strategies to promote sustainable agriculture, including irrigation management and rural development;

(c) To raise awareness that agricultural development and water resources management alone will not be sufficient to reduce rural poverty, and that interventions in the non-farm sector will be equally important. Lessons learned with regard to non-farm interventions will be shared to promote scaling up of good practices.

3. The Workshop was organized by the Department of Economic and Social Affairs of the United Nations Secretariat in collaboration with the UN-Water Decade Programme on Capacity Development and the Economic and Social Commission for Asia and the Pacific (ESCAP).

II. Summary of the workshop

Opening session

4. The Capacity Development Workshop for Improving Agricultural Productivity, Water-use Efficiency and Rural Livelihoods was inaugurated by Noeleen Heyzer, Under-Secretary-General of the United Nations and Executive Secretary of ESCAP. She welcomed all to the Workshop and conveyed the message that world poverty and hunger could not be reduced without improvement in agricultural production and distribution. Even though the Asia-Pacific region had made good progress towards reducing poverty, a lot remained to be done, especially for people living in rural areas to have access to clean water and basic sanitation and to safeguard the

rural population against natural disaster. She informed the participants that the ESCAP in its *Economic and Social Survey of Asia and the Pacific*, launched in March 2008, had been one of the first to highlight the neglect of agriculture as a main development challenge faced by the region. The *Survey* had highlighted the need for another agricultural revolution, including through increased investment in agricultural research, science and technology, human capital, extension services, irrigation and rural infrastructure. It had also identified revamping of land tenure systems and empowerment of the poor, particularly women, with the skills to tap labour market opportunities and to promote rural non-farm activities as important steps in reducing rural poverty and hunger.

5. With thanks to the UN-Water Decade Programme on Capacity Development and ESCAP for collaborating on the Workshop, the Director of the Department of Economic and Social Affairs of the United Nations Secretariat, the Division for Sustainable Development, Tariq Banuri, welcomed all to the Workshop and emphasized the interconnected objectives of sharing experiences and lessons learned for sustainable agricultural water management in order to identify policies and actions to ensure that those lessons were put into practice, and ensuring that commitments already made in that regard were fulfilled. He outlined factors hindering effective implementation of agricultural water management options, including the persistence of hunger and malnutrition, the propensity for price volatility, the growing gap between the rising demand for food and stagnant yields in food production, the growing conflict between alternative uses of land and water, and climate change. He highlighted various issues that should be discussed, such as the challenges of addressing unsustainable use of natural resources, agriculture and food security in a coherent and integrated manner; resolving conflicts over multiple uses, especially between food and energy; policy measures for enhancing agricultural productivity; and what should be done to make the multilateral trading system as well as regional trading arrangements more supportive of agriculture.

6. The Executive Secretary of the United Nations Convention to Combat Desertification, Luc Gnacadja, stated that desertification was an underrecognized threat to global well-being that was aggravated by climate change. Desertification referred to land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. He mentioned that, from the perspective of the Convention, agricultural production systems should take into account the sound management of common resources, such as water and land that sustained agricultural productivity. Most of the action programmes by countries party to the Convention identified the linkages between land and water utilization and management as a prerequisite for the promotion of sustainable agricultural production systems. He also indicated that combating desertification was synonymous with undertaking sustainable development efforts. The protection of land not only was good for agricultural practices, but also was a response to other major sustainable development challenges, including climate change and the fulfilment of the Millennium Development Goals.

7. Ralf Klingbeil, Senior Programme Officer of the UN-Water Decade Programme on Capacity Development, welcomed participants and provided an overview of activities of the Programme, citing the mandate of strengthening the capacity development programmes of members by supporting the improvement of capacity and competence for national and local stakeholders in water management. He stressed that water use efficiency in agriculture must be one of the highest

priorities for sustainable livelihoods. A small reduction of losses in the irrigation systems and in the production-consumption chain made a substantial volume of freshwater available for human consumption and other productive purposes. It was important not only to address individual capacities or develop knowledge of individual water managers or agricultural engineers, but also to retain individual knowledge in respective institutions, contribute to institutional capacity development, and hence contribute to building competent institutions capable of sustainable land and water management.

8. Finally, Javad Amin-Mansour, Vice-Chair of the seventeenth session of the Commission on Sustainable Development, representing the Asia region, provided an overview of the forthcoming seventeenth session, which would address the current thematic cluster of agriculture, rural development, land, drought, desertification and Africa. He underlined the significance of desertification, severe drought, climate change, loss of biodiversity, global population growth and management of land and water resources, as well as the lack of political will and good governance, and the adverse impacts of recent global food and financial crises. He stressed the urgent need for provision of means of implementation, including mobilization of financial resources, utilization of new and appropriate technologies and enhancement of capacity-building in developing countries, and for international cooperation, which was crucial for achieving sustainable development in general and the Millennium Development Goals in particular.

Session one
Agricultural development and food security

Thematic presentations

9. In his presentation on "Food security: concept, framework and interdependencies", Amitava Mukherjee, Senior Economic Affairs Officer and Head, United Nations Asian and Pacific Centre for Agricultural Engineering and Machinery in Beijing explained that the concept of food security as it related to livelihood was defined as a state in which there was enough food for all with adequate nutritional value that was culturally acceptable, and people had economic, social and physical access to food and potable water at all times for a healthy life. The following seven entitlements defined access to food: endowment entitlement, production-based entitlement, own labour entitlement, exchange entitlement, trade-based entitlement, inheritance or transfer entitlement, and usufruct entitlement. Policy options for food security included adequate production of food, measures to enhance general economic growth and expansion of employment, diversification of production, decent rewards for work, enhancement of medical and health care, spread of education and literacy, arrangement for special access to food, creating political incentives to ensure food security, and strengthening of news media and civil society organizations.

10. In her presentation on "*Agriculture development and adaptation to climate change: issues and challenges*", Lisa Schipper of the Stockholm Environment Institute introduced the concept of adaptation to climate change as a process of adjusting to changes in climatic variables, as well as the adaptation that took place at different levels. Vulnerability implied how sensitive and exposed an individual or system was to a specific natural hazard. Agriculture was one of the sectors the most

sensitive to impacts of climate change, as it was the major source of livelihood of the majority of the world's rural poor. She emphasized that it was the major overlapping issue for addressing both climate change and poverty, since climate change affected food availability and stability of supply, and impacted use of land for bioenergy crops. As such, climate change needed to be considered seriously in the food security debate. Adaptation options needed to be explored by evaluating the likely changes, by assessing the impacts, and then deciding on how greenhouse gases could be reduced and adaptation efforts taken. Mitigation and adaptation needed to be jointly considered.

11. The presentation on "Sustaining smallholder farming systems: opportunities and constraints", by Esther Penunia, Secretary General of the Asian Farmers Association for Sustainable Rural Development, dealt with the constraints for sustaining smallholder farming systems, which faced challenges such as lack of access and control over natural resources, poor participation in decision-making, lack of information and limited opportunities for capacity-building. Recognition of the value of small-scale farmers, provision of adequate support services, capacity-building of farmers' organizations and agricultural cooperatives, introducing land tenure security policies, and mainstreaming integrated, diversified agriculture were identified as opportunities for sustaining smallholder farming systems. The Asian Farmers Association was committed to upholding smallholder farming systems through organization and capacity-building, as well as networking and advocacy with national Governments and regional intergovernmental bodies.

Country presentations

12. Andrew T. Daudi, Principal Secretary for Agriculture and Food Security, Ministry of Agriculture of Malawi, provided an assessment of policy reforms for enhancing national agricultural productivity. Malawi had undergone various significant agricultural sector reforms in order to address the problem of fluctuating agricultural growth due to low agricultural productivity. The decline in agricultural sector investments, insufficient access to agricultural inputs, inadequate communication and adoption of technologies, lack of access to credit, low output prices, land degradation, weak intra- and inter-sector linkages, and climate change and overdependence on rain-fed agriculture were indicated as the underlying causes of low agricultural pro[illegible]uctivity. Free input programmes, farm input subsidy programmes for hybrid seeds and fertilizer and pricing policies for cotton, maize and tobacco were some of the major policies implemented to address productivity challenges.

13. M. A. Akmall Hossain Azad, Additional Secretary of the Ministry of Agriculture of Bangladesh, provided an overview of agricultural productivity, water-use efficiency and strengthening rural livelihoods in the context of Bangladesh. Bangladesh had achieved significant progress in food production over the last three decades, but poverty remained endemic. Addressing various factors, such as input-use efficiency, crop diversification, adoption of integrated crop production farm mechanization, and research and technology innovations, among others, promoted agricultural productivity. Soil degradation, pest infestation, lack of infrastructure and power supply, and land scarcity were some of the challenges cited for crop production. He also discussed capacity utilization of minor irrigation systems, command area development, drought alleviation, increasing water-use efficiency, alternate wetting and drying methods for water saving, salinity management and

institutional arrangements for increasing water productivity. Apart from improving agricultural productivity and water-use efficiency, agricultural marketing systems and creating employment opportunities were mentioned for strengthening rural livelihoods.

Outcomes

14. Salient outcomes of the presentations and discussion during session one include the following:

(a) Food security is a much broader concept than food production and there are many factors that determine food security. Economic, social and physical access to food and potable water at all times are prerequisites for food security. Policies aimed at promoting agricultural development should adapt balanced approaches in the sense that pro-poor growth receives priority with special attention to small farmers;

(b) On sustainability of farm input subsidies, the question is to whom does the subsidy go? Proper targeting guidelines should be set to identify the group receiving the subsidy, and in the case of Malawi some of the factors mentioned for extending subsidies are directly targeted to the poorest of the poor, to women-headed households, to those affected by natural calamities and to those who do not have any support of any form. It is imperative that Government support services be directed to farmers, particularly small farmers, from land ownership to the marketing of products;

(c) Climate change has serious implications for agricultural development and food security. It works in combination with many other factors that affect food production and access to it. We need to recognize that adaptation to climate change is a process, but there is a limit to adaptation as well. Adaptation measures and efforts to reduce greenhouse gases are taken at different levels guided by national policies and strategies. The individual and community-level actions taken to mitigate and adapt to climate change in different countries must be recognized and adequate support should be provided to the small-scale farmers who are contributing to the collective effort of mitigation and adaptation to climate change;

(d) The pace at which we can adapt our agricultural production systems to changes in climate will be contingent upon the rate at which we will facilitate capacity-building, technology transfer and other efforts to adapt to climate change. Future policies should focus on sustainability of programmes, as efficient management of natural resources and efficient water management practices are critical for agricultural development and water security;

(e) Smallholder producers play a central role in achieving sustainable rural development and poverty reduction. Support is needed for capacity-building, institution-building, improved market access, and equitable and secure access to land and natural resources. Local-level institutions, such as farmers' organizations and cooperatives, are crucial for capacity-building of small-scale farmers to act collectively in production, marketing and advocacy for the common interest.

Session two
Improving agricultural water management

Thematic presentations

15. "Will there be enough water? What the comprehensive assessment of water management in agriculture says", by Deborah Bossio of the International Water Management Institute, highlighted the drivers of the changes to water management and provided an overview of the water-use situation. When one asked, "Is there enough water to grow food and support wetlands and biodiversity?" the response would be negative, unless we changed the way we thought and acted on water issues. The presentation reflected the future situation with the consideration of multisectoral needs and demands and stressed the need to increase water productivity to maintain basic food production. Proper management in the agricultural sector was needed with community participation maintaining habitat integrity and connectivity to provide ecosystem services. In that regard, a policy reform process was needed to address the integrated facets of poverty and hunger reduction, gender inequality and ecosystem degradation. Appropriate actions had to consider water storage, as well as water and land productivity. In addition, rain-fed agriculture and land management contributed significantly to agricultural productivity and food security, and should be recognized in the process of resource allocation towards the agricultural sector.

16. "Integrated land and water management for food security: lessons learned", by Brett M. Ballard of AusAID, Cambodia, emphasized integrated land and water management, focusing on key inputs of land and water resources for achieving sustained agricultural growth that promoted poverty reduction, equity and food security. He addressed how to achieve greater agricultural productivity through more efficient use of land and water resources under demographic and climate pressure and an increasingly contested environment of sharing resources. Institutional arrangements, governance, development planning, the role of science, information and knowledge, and capacity-building were some of the important aspects of integrated land and water management. With institutional arrangements for land and water management distributed over different sectors, structured coordination was needed aligning the policy and planning objectives both horizontally and vertically. Regarding governance, land and water tenure rights and obligations needed to be clarified, and effective dispute resolution mechanisms had to be instituted. Integrated land and water management required long-term development planning with changing perspectives and as such, the role of science was very important and required substantial and sustained support. Building strong linkages among science, policy, farmers and civil society was very important within efforts to share knowledge and information and build capacity.

17. "Technological and management innovations in irrigation water management and their impact on agricultural production", by Thierry Facon, Senior Water Management Officer, Regional Office for Asia and Pacific of FAO, stressed a multiscale approach to raising water productivity. Its three basic principles were: increasing the marketable yield of the crop per unit of water; reducing all outflows (like drainage, seepage and percolation); and making effective use of rainfall, storm water and water of marginal quality. For enhancing water productivity at plant level, various options were to be considered, such as improving germplasm (for example, improving seedling vigour, increasing rooting depth, increasing the harvest index),

enhancing photosynthetic efficiency, and conducting breeding programmes to develop an appropriate growing cycle to match water availability and favourable climate to the vegetative and reproductive periods. Improved practices at field level for raising water productivity related to changes in crop, soil and water management, involving appropriate crops and cultivars, planting methods, timely irrigation, nutrient management, drip irrigation and improved drainage for water table control. Deficit irrigation in water-stressed conditions, supplementary irrigation and water harvesting to cope with the variability of resource availability were some other options at field scale for improving water productivity. Finally, at the basin scale, the effects of agriculture on other water users, human health and the environment were at least as important as production issues. Options for improving water productivity at the agro-ecological or river-basin level were found in better land-use planning, better use of medium-term weather forecasts, improved irrigation scheduling to account for rainfall variability, and conjunctive management of various sources of water, including water of poorer quality where appropriate.

Country presentations

18. Salem Hassan Bashuaib, Chairman of the National Water Resources Authority of Yemen, provided an overview on groundwater development and management in Yemen. A large part of the country's economy depended on groundwater resources. Groundwater depletion had become a critical issue since the 1980s, particularly as farmers had rapidly exploited groundwater resources through the drilling of deep wells. Major groundwater management challenges were identified as groundwater mining, groundwater quality deterioration and seawater intrusion. Other challenges included enforcement of water law and various water regulations, and particularly the decree that regulated the activities and movements of drilling rigs. Yemen had made considerable progress in groundwater resources management in relation to institutional reform and capacity-building, policies and legislation, and studies and plans. Major drivers for policies and programmes were identified as developing and strengthening institutional capacity, community empowerment, affordability and accessibility of urban and rural populations to safe and regulated water supplies and sanitation, and sustaining farmer's income while using less groundwater and water harvesting. Raising public awareness, forging coordination among different stakeholders, and instituting monitoring and evaluation programmes were also considered to be effective management interventions.

19. K. R. S. Perera, Ministry of Agricultural Development and Agrarian Services, Sri Lanka, provided an overview of institutionalizing agricultural water management at the local level, including background on Sri Lanka's hydro-climatic conditions, irrigation and rain-fed agricultural schemes and challenges in improving productivity. The high cost of seeds and fertilizer, low soil fertility, lack of modern technologies and the deviation of younger generations from agriculture were all contributing factors. Climate variation brought added challenges and problems owing to changes in seasonal rainfall patterns, high intensity of rainfall and reduced number of rainy days, and frequent floods and damage to irrigation infrastructure. The agricultural water management options introduced in the early 1980s addressed some of those issues, as introduction of high yield varieties, canal lining, awareness programmes, participatory irrigation management, rehabilitation and modernization of irrigation systems, fertilizer subsidy programmes, and consideration of climate change impacts through various studies all had a positive impact. Those were also

facilitated by the introduction of agricultural policies, irrigation and agrarian acts and national goals. The major goals of the country with regard to the management of water were greater efficiency in irrigation and water management through farmer participation; increased productivity through crop diversification; rehabilitation of minor irrigation systems; and drainage and flood protection improvements.

Outcomes

20. Salient outcomes of the presentations and discussion during session two are summarized below:

(a) There is a need for an integrated approach to address water scarcity issues, including consideration of how water rights are defined and how water resources are being allocated and regulated. It is necessary to come up with strong policy statements addressing disparity with regard to entitlement to water, particularly with regard to small-scale farmers;

(b) It is necessary to view land and water as integrated ecosystems and to strive for efficient development and management of these resources in order to increase food security. Adequate institutional arrangements must facilitate and promote integrated approaches to land and water management through transparent dialogue among policymakers, the private sector and civil society;

(c) Inventory of land ownership and land rights is central to effective land and water management. However, ascertaining land rights properly is a very complex issue. Roles and responsibilities of different institutions are to be defined properly to deal with land tenure and land titling programmes;

(d) Improved practices at field level, including deficit irrigation in water-stressed conditions, supplementary irrigation and water harvesting to cope with variability are advocated for improving water productivity. Wastewater management and recycling of wastewater in irrigation, with due consideration for health requirements, are important options for water-stressed countries;

(e) A holistic approach is needed in governance of land and water management in the context of basinwide integrated water resources management plans. Necessary policy reform processes are to be instituted to ensure allocation of adequate resources for the development and implementation of sustainable agricultural options, with participation of all cross sections of farming communities.

Round table 1
Water management and food security

21. Citing facts and figures with respect to water use by different sectors and the need for efficient agricultural water management with respect to food security, the moderator of this round-table session invited panellists to discuss how water management challenges in the future would look and how they could be addressed within the context of water shortages and water needs for food production. The discussion revolved around the following points:

(a) Water management and water scarcity are directly linked to food security. Many policy decisions that are not directly or indirectly related to water nonetheless affect the availability and quality of water. It is therefore imperative that the water sector needs to inform other sectors in which policy decisions are taken that will impact water-related issues;

(b) An effective institutional framework is needed to ensure a dialogue between those who address water issues from a water resources management perspective and those who address issues related to agricultural water management. Land and water management policies are challenging to implement, since they address common pool resources;

(c) Countries need to have clear policies and strategies for land and water management, maintaining consistency among water policy, agricultural policy and food security policy. Adequate capacity-building endeavours at different levels, both within sectors and across sectors, are needed for proper understanding of how to implement sectoral policies and strategies. Capacity-building at the local level is particularly important;

(d) Good benchmarking is necessary to assess the effectiveness of investments made in agricultural water management. Monitoring, stakeholder participation, integrated management and capacity-building at different levels can lead to good governance;

(e) A new concept of water security is advocated to address not only the basic need for food and water, but also to promote human well-being through socio-economic development with special attention to maintaining a balance among the sustainable development pillars. Important elements of a water security framework include enhancing the resilience of communities to changes, intensifying efforts to provide clean water for all, implementing pro-poor policies and improving irrigation investment management.

Session three
Strengthening rural livelihoods

Thematic presentations

22. "Non-farm interventions for strengthening rural livelihoods", by Mechai Viravaidya, Chairman of the Population and Community Development Association, reflected on how poor people, whose basic needs were not being met by Government services and who could not afford to pay for alternative services offered by the business sector, were empowered to run collective entrepreneurships to generate income and afford basic necessities. That integrated approach involved partnerships among Government, business, local communities, non-governmental organizations and, sometimes, international organizations, with financing coming from the business sector. He elaborated on basic steps of community partnering with businesses, starting with community needs assessments, visits to villages, exposure of villagers to new ideas and observation of successful business activities that led to finalization of a development plan, prioritizing activities, setting time frames and identifying cooperating agencies. Subsequently, the plan was submitted to the company for consideration and funding. Finally, activities were implemented by the villagers with assistance from cooperating agencies, including companies and the Population and Community Development Association. Keys to success included institutional development with a focus on community empowerment; economic development with income generation; environmental protection; health care and elderly support; and education, democracy and human rights.

23. "Infrastructure development and rural development: experiences from a multi-country intervention", by Amitava Mukherjee, Senior Economic Affairs Officer and Head of the United Nations Asian and Pacific Centre for Agricultural Engineering and Machinery in Beijing, provided an overview of a multi-country partnership project initiated by ESCAP on rural development, based on public-private partnerships where communities, Governments, the private sector and civil society organizations worked together for a common goal. He referred to initiatives on efficient energy production in Indonesia, water supply in Sri Lanka, health care in Thailand and biodiversity in Pakistan. Those initiatives all involved specific institutional arms that were committed to organizing the communities to address the issues. The role of ESCAP was to facilitate the process for effective realization of public-private partnerships.

24. "Linking small farmers to markets", by Marlene Ramirez of the Asian Partnership for the Development of Human Resources in Rural Asia, stressed improving market access to small producers and farmers by creating marketing intermediary mechanisms in order to reduce poverty in rural areas of South-East Asia. Small producers often lacked the knowledge they needed to identify new products or buyers in order to compete; they needed skills in processing, quality control, packaging, marketing and finance; and they needed credit and capital to sustain their operations. Small producers and farmers needed to be empowered to effectively engage in the market. She stressed the need for market intermediation mechanisms in respective countries aimed at strengthening entrepreneurial capacities of non-governmental organizations and partner farmers' organizations by establishing and strengthening marketing links between small farmers' groups and market players and by policy collaboration. Consolidated production at an economic scale, production of better quality products, and regular supply and delivery of a specific commodity were the main requirements for linking small farmers to markets. National-level and regional-scale reform of markets to improve pro-poor incentives and remove or diminish anti-poor biases was also a challenge.

Country presentations

25. In "Rural development models: lessons and experiences", Kota Tirupataiah, Special Commissioner of Rural Development, Government of Andhra Pradesh, India, stressed that an enabling environment was key for multistate sectors to work coherently in addressing the multidimensional needs for rural development, with the basic strategy of linking resources to families and communities for area development through community-oriented activities, and community empowerment to sustain development initiatives absent support from government or other sources. The overall scope of rural development went beyond the three topics of improving agricultural productivity, water-use efficiency and rural livelihoods that were emphasized in the current Workshop. He outlined different models that had emerged for rural development in India in the context of development needs in different regions, including the green revolution model in Punjab and Uttar Pradesh, the human development index model in Kerala, the agrarian reforms model in West Bengal and the social capital model in Andhra Pradesh. He elaborated on the social capital model, citing various institutional means, regulatory means, and accessibility to basic necessities and finances that helped develop individual capital, social capital, natural capital, physical capital and financial capital.

26. "Agricultural policy of Mongolia: enhancing productivity of the agricultural sector", by D. Bat-Erdene, Director of the Information and Monitoring Department, Ministry of Food, Agriculture and Light Industry, Mongolia, provided an overview of the food and agricultural sectors in the country, highlighting cultivated cropland use, the state of agricultural production, labour forces and machinery used in the agricultural sector. A national programme initiative, the third crop rehabilitations programme, had been introduced with the goal of increasing the areas under irrigation, intensifying development of crop production and increasing harvested yield. The programme aimed to ensure food safety, increase self-reliance and eliminate import dependence. Although the country had vast potential for the improvement of agro-production, its development was constrained by poor infrastructure, lack of safety and quality control, limited storage and transportation facilities, inappropriate loan portfolios, low levels of education, and lack of imported seeds, fertilizers and pesticides.

Outcomes

27. Salient outcomes of presentations and discussion during session three include the following points:

(a) It is imperative to forge a village development partnership with an integrated approach involving Government, business, communities and non-governmental organizations, with international organizations playing a supportive role when needed;

(b) Successful small-scale community-based development activities rely on institutional development to empower communities, economic development, environmental protection, health care, elderly support, education, democracy and human rights;

(c) Small producers and farmers need to be empowered to effectively engage in markets. Their knowledge base should be strengthened in order for them to produce standard products for the market and to deal with marketing and finance. Access to credit and capital are also vital to sustain operations;

(d) A market intermediation mechanism should be in place to establish and strengthen marketing links between small farmers' groups and market players in respective countries. Non-governmental organizations and farmers' organizations can play a prime role in building this entrepreneurial capacity;

(e) There is a need to find ways to replicate the concept of developing village-level partnerships for strengthening rural livelihoods, with an integrated approach involving multiple sectors;

(f) The role of civil society should be well recognized. A proper enabling environment is essential for multistate sectors to work coherently in addressing multidimensional needs for rural development, with a basic strategy of linking resources to families and communities through community-oriented activities and empowering the community to sustain the development initiative.

Session four
Improving land-use planning and management

Thematic presentations

28. In his presentation, "Institutional and policy framework for sustainable land-use planning and management to combat land degradation", Yang Youlin, Asia Regional Coordination Unit, secretariat of the Convention to Combat Desertification, provided an overview of the global status of land degradation through different case studies, with emphasis on main causes of land degradation and consequences of desertification. He also provided a brief introduction to the strategic objectives of the secretariat for 2008-2018, including improving the livelihoods of the affected populations, improving the productivity of affected ecosystems, generating global benefits, and mobilizing resources to support implementation of the Convention through building effective partnerships between national and international actors. He described the institutional and policy framework in land-use planning and management in China and Thailand, and concluded by stating that land and soil degradation were underrecognized threats to global well-being that were aggravated by climate change. Desertification was, therefore, a global issue that required global action.

29. "Providing access to land: challenges and solutions", by Michael Taylor, Programme Manager, Global Policy, International Land Coalition, emphasized the importance of securing access to land for strengthening rural livelihoods. Most farmers were small-scale farmers and the greater the disparity in landholding, the greater the difficulty in achieving equity. He identified the key ingredients for securing access to land as transparent and inclusive processes for land policy development, people-centred land policies, gender equity in the formulation and implementation of land policy, policies reflecting diverse tenure systems, redistributive reforms as an integral policy tool, innovative and accessible systems for the recognition of land rights, development of systems for monitoring land rights, and adequate response to new global contexts of transnational land investments. He outlined urgent actions needed to develop a code of conduct for transnational land investments, placing local land users in the centre of negotiations: carbon trading mechanisms had recognized the rights of local land users; guidelines should establish equitable community-investor partnerships; and local institutions should be strengthened.

30. "Adapting to climate change in managing land and other natural resources: regional experiences", by Salmah Binti Zakaria, Economic Affairs Officer, Water Security Section, ESCAP, provided an overview of the salient outcomes of the fourth assessment report of the Intergovernmental Panel on Climate Change. Two challenges in addressing climate change were highlighted: more frequent extreme weather conditions of floods and droughts with severe impact to various sectors like agriculture, forestry, biodiversity, water resources, coastal and marine resources, energy and public health; and limited downscaling of global climate model inferences to appropriate finer grids so that better and more reliable analysis of climate change impacts could be done at regional and national levels with the aim of having more confidence in planning for adaptation strategies. The presentation referred to Assessment of Impacts and Adaptations to Climate Change in Multiple Regions and Sectors studies that focused on filling gaps in scientific knowledge and capacity following the third assessment report of the Intergovernmental Panel, and

covered 24 regions and 46 countries with 5 projects in Asia, 11 in Africa and 5 in Latin America. The studies focused on identifying vulnerabilities and providing recommendations for adaptation. The high level of concern in water resources vulnerability was cited with regard to collapse of water systems leading to severe and long-term water shortages; and water scarcity, which retarded progress on the Millennium Development Goals and threatened food security. The high level of concern in land vulnerability was cited with regard to widespread desertification of land with irreversible changes to soil structure or nutrient status.

Country presentations

31. Davood Nikkami, Soil Conservation and Watershed Management Research Institute of Iran, provided an overview of the country's hydro-climatic conditions, water resources, agricultural land use and spatial planning. He highlighted problems of soil erosion, improper land-use and management, land degradation, floods and drought, and outlined projects on land-use planning, drought risk assessment, rainwater harvesting and utilization of renewable sources of energy. Sectoral strategic plans, intersectoral planning and cooperation, training and extension services, new and appropriate technologies, international cooperation, national and international expertise, and international financial resources were discussed as important means of implementation.

32. The presentation entitled "Pakistan: land management and poverty reduction", by Abdul Qaddus Malik, Director of Agriculture, Islamabad, began with an overview of land utilization, areas under major crops and crop production. Policies with inappropriate subsidies and limited land-use planning, limited institutional capacity and coordination, insufficient financial resources, and socio-economic conditions like vulnerability to climate change and land tenure security were mentioned as barriers to sustainable land management. Various measures adopted to address issues related to agriculture, land and water management included controlling waterlogging and salinity through community involvement; integrated watershed management; arid area development programmes; rehabilitation of degraded rangelands; and improving marketing infrastructure systems and encouraging joint ventures in agricultural production, processing and marketing. Future strategies for sustainable land management included development of additional storage capacities; improvement of water-use efficiency; promotion of high efficiency irrigation systems and water conservation techniques; production and export of high value crops; promotion of contract farming and provision of credit facilities for agribusiness; and increased investment in research and technology development.

Outcomes

33. Salient outcomes of presentations and discussion during session four are summarized below:

(a) Desertification is a global issue that requires global action. Land and soil degradation are underrecognized threats to global well-being. Negative consequences of poor water and land management are aggravated by climate change;

(b) There is a need for transparent, inclusive processes for land policy development. The revision or formulation of national land policies must allow for

the participation of the full spectrum of land users. Inclusive processes build the consensus and political will upon which successful implementation of land policy depends;

(c) Land policies should support the diverse interests of land users, with special attention to the needs of the most vulnerable. Vulnerable groups with weak land rights or insufficient access to land include users of common-pool resources, tenant farmers, farm workers and people affected by conflict;

(d) Land and water resources management need to be integrated in adaptation to climate change. Mitigation efforts targeted in reducing emissions, and adaptation to reduce vulnerabilities and strengthening coping capacities should be integrated in the overall development process.

Round table 2
Climate change and rural development

34. The moderator opened the round-table session by inviting participants to consider how mitigation and adaptation were related, and how different research institutions and agencies were addressing those issues; to discuss how policies that were put in practice for climate change mitigation had consequences for rural livelihoods; and to consider how adapting to extreme events posed immediate challenges compared with long-term gradual changes. Outcomes of this session are listed as follows:

(a) Climate change will further stress and exacerbate rural development conditions. Mitigation needs to be pro-poor, such as providing incentives for land and soil improvement through carbon sequestration. For adaptation, an approach that is synergetic with mitigation efforts is needed;

(b) Climate change impacts should be assessed at the local level and within specific country context so that vulnerabilities can be assessed and adaptation strategies formulated. It is necessary to design actions and identify who will act at different levels. Urgent actions are needed for additional investments to increase the coping capacity of the community and actors at different levels;

(c) Climate change is a sustainable development challenge with a prominent equity dimension. How can societies that use enormous amounts of energy reduce their fossil fuel footprint while fostering the economic growth of developing societies?;

(d) Building the resilience of societies to cope with the impacts of climate requires knowledge-sharing and capacity-building within communities. Designing management principles and policies that are flexible and backed with adequate resources will enable communities to adapt their livelihoods;

(e) Local land tenure systems and food production systems need to accommodate the diversity of land-use and access arrangements. They often allow for the recognition of multiple and overlapping rights. New land policies should recognize and protect the diversity of informal and customary tenure systems that exist.

Session five
Scaling-up of good practices in agriculture and resources management

Thematic presentations

35. In "Agricultural research: regional challenges and opportunities", Randy Stringer of the University of Adelaide, Australia, stressed the diverse and multiple roles of agriculture in respect to productivity, poverty reduction, environment services, social well-being and public health. The common driving forces shaping the agricultural research agenda included income growth and urbanization; global lifestyles; women in the urban wage workforce; a carbon-constrained economy; the food, fuel and financial crises; diet, health and where we bought food; and biotechnologies. He advocated attention to the role of agriculture in poverty alleviation, noting that research should support agriculture as a positive economic, social and environmental force. There should be a greater propensity for researchers to collaborate, as well as more focus on strategic positioning, technologies, scaling-up best practices, how to use research and including producers in research.

36. "Scaling-up good practices: payment for environmental services for water regulation and soil conservation", by Hitomi Rankine, ESCAP, dealt with the concept of payment for environmental services in the context of climate change with its increased frequency and severity of floods and droughts and risk of reduced ecosystem services, along with increased demand for ecosystem services. Basic payment for ecosystem services was payment to land managers for sustainable land management practices that yielded ecosystem service benefits. Farmers could be paid for conserving water, enhancing water quality, conserving soil, enhancing biodiversity and sequestering carbon. Considering the opportunity cost was very important when implementing payment schemes and the challenge was how to scale-up the scattered examples of payments for ecosystem services to a viable approach of bringing in the concept at the national or regional level. To achieve the scaling-up called for a rethinking of natural resources management, giving due regard to environmental services and proper policy action.

37. "Scaling-up of good practices in agriculture and resources management: experiences of processes in Asia-Pacific", by Le-Huu Ti of ESCAP in cooperation with Thierry Facon of the Food and Agriculture Organization of the United Nations (FAO), conveyed three important messages: scaling-up of good practices was a process which had to be integrated into socio-economic development and built on strategic elements of national development goals; integration of scaling-up processes had to be supported by effective monitoring systems; and replication of good practices had to be supported by a knowledge hub. A multi-level approach combining policy and practice in order to address the diversity and complexity in agricultural practices and water management had to be developed, and centres of excellence in different areas at different levels needed to be identified. Interventions for improving natural resources management included increasing capacity-building efforts that introduced new concepts and knowledge and provided people with appraisal methods; introducing practical and adaptable tools at the policy and strategy levels; adopting benchmarking to assess the system's performance and assist in the decision-making process; and emphasizing community participation for diffusion and synthesis of knowledge. A number of regional initiatives following those ideas had been undertaken in different countries, under the theme of a regional

programme to support action at all levels through knowledge-sharing, capacity-building and implementation.

Outcomes

38. Salient outcomes of presentations and discussion during session five are summarized below:

(a) Payment for environmental services, particularly from agricultural and rural perspectives should be considered in the overall context of poverty alleviation associated with other factors like trade-distorting subsidies;

(b) For effective land and water management, efforts need to be directed to bridging capacity-building gaps at all levels, striking a strategic balance between investments in all scales of irrigation systems and rain-fed agriculture and with a particular focus on poverty alleviation;

(c) Promotion of scaling-up of good practices in agriculture and resources management is advocated, considering integration of multidimensional factors in national contexts through proper policies and strategic planning;

(d) Scaling-up of any process requires appropriate institutional strengthening, facilitation within the national context, and decentralized governance for effective adaptation of good practices at the national or regional level;

(e) Scaling-up can also be achieved through market systems that enable the dissemination of good practices; however, the possibilities and limitations of markets in disseminating pro-poor approaches should be considered. Civil society efforts to scale-up good practices can be highly successful.

Session six
Way forward and closing session

Way forward: summary of recommendations

39. The draft summary of recommendations was reviewed and discussed. Necessary changes and additions were incorporated, including inputs from major groups. The final adopted version is contained in document E/CN.17/2009/13.

Closing remarks

40. The Director of the Division for Sustainable Development, Department of Economic and Social Affairs, Tariq Banuri, praised panellists for their eloquent presentations, which brought challenges and opportunities to light and proposed good practices in agricultural land and water management. He noted constructive discussions during the Workshop that enriched the prevailing knowledge and provided guidance on the way forward for effective and sustainable land and water management. He thanked all the participants for their active participation and contribution. He also stressed two important points. First, that the global policy process should be seen as a means of facilitating national actions, as well as supporting institutional development and capacity-building at national level. The Commission on Sustainable Development was a central forum for global policy formulation and provided the only platform where an integrated approach to economic development, environmental protection and social equity was considered.

That global policy forum could play a very strong and constructive role in assisting and facilitating Governments to take necessary action, providing guidance and support for national policy formulation and helping to create an enabling environment in which major groups were also able to take action to further the agenda on sustainable development. Second, with the occurrence of a number of different crises on the horizon, there was a need to maintain the view of sustainable development at all levels. The energy crisis, food crisis, economic and financial crisis needed to be considered in an integrated manner in order to provide sustainable solutions to tackle those challenges.

41. Gerda Verburg, Minister of Agriculture, Nature and Food Quality, the Netherlands, and Chairperson of the seventeenth session of the Commission on Sustainable Development, reiterated in her closing statement the challenging task to foster sustainable agricultural land and water management in order to ensure food security and poverty eradication. Even though Governments had made the commitment to reduce by half the number of people living in poverty by 2015, the achievement of the first Millennium Development Goal was further away than ever. She cited a number of reasons for high food prices, such as neglecting investments in agriculture, less available farmland, droughts, growing demand for biofuels and changing consumption patterns. A five-track approach was recommended that would help to address the issues and challenges faced by agricultural development, water management and rural livelihoods. The first track called for substantial investment in sustainable agriculture for capacity-building in the area of land and water management, sharing knowledge and technology transfer. The second was an enabling environment, emphasizing community participation in the decision-making process, attracting private investment, considering tenure rights and ensuring integrated land and water management at all levels. The third was to develop a safe and sustainable food chain, from production, processing and marketing to consumers. The fourth track aimed at improving market access that supported the development of local and regional markets. The fifth track focused on food security and emergency food aid, by means of enhanced safety nets for the most vulnerable people and increased lending possibilities, including provision of microcredit schemes. In closing, she reminded participants of the important role of governance, with the emphasis that poverty eradication, food security and sustainable resources management should be addressed in a coherent manner.